

Patent Claims

1. A lane device for detecting the lane of a vehicle
(10, 11, 12), the lane device (30), the latter having
evaluation means (32, 34, 37) for evaluating distance data
10 (60, 61, 66) of at least one distance sensor (58, 59, 65),
it being possible to determine a lateral distance (d1-d4)
from a reference body (62, 64) which runs essentially
continuously to the side of the lane, at least in
sections, from the distance data (60, 61, 66) and the
15 evaluation means (32, 35, 37) being configured to acquire
lane data (36) as a function of the distance data (60, 61,
66), characterized in that the evaluation means (32, 35,
37) are configured to filter out interference information,
caused in particular by vehicles (17) present in the
20 region of the lane or discontinuities (63) of the
reference body (62, 64), from the distance data (60, 61,
66).

2. The lane device as claimed in claim 1, characterized
25 in that it contains at least one high pass filter (31)
and/or at least one low pass filter for filtering the
distance data (60, 61, 66).

3. The lane device as claimed in claim 1 or 2,
30 characterized in that it carries out plausibility checking
for the filtering.

4. The lane device as claimed in one of the preceding
claims, characterized in that the evaluation means (32,
35 35, 37) compare the lane data (36) and/or the distance
data (60, 61, 66) with stored lane data (45).

5. The lane device as claimed in one of the preceding claims, characterized in that the distance sensor (58, 59, 65) operates in a range of invisible or inaudible frequencies.

5

6. The lane device as claimed in one of the preceding claims, characterized in that the at least one distance sensor (58, 59, 65) is an ultrasonic sensor, a radar sensor or an infrared sensor.

10

7. The lane device as claimed in one of the preceding claims, characterized in that it can be activated, or activates itself, when there is an operative failure of a wirefree locating system, in particular of an GPS system (41), and/or where there is an operative failure of an optical detection system (40).

15

8. The lane device as claimed in one of the preceding claims, characterized in that the at least one distance sensor (58, 59, 65) forms a component of the lane device (30).

20

9. The lane device as claimed in one of the preceding claims, characterized in that the at least one distance sensor (58, 59, 65) forms a component of a parking aid device (28).

25

10. The lane device as claimed in one of the preceding claims, characterized in that it evaluates the distance data (60, 61, 66) of the at least one distance sensor (58, 59, 65) as a function of the velocity (v1) of the vehicle (10, 11, 12).

30

11. The lane device as claimed in one of the preceding claims, characterized in that it evaluates, and in particular weights, the distance data (60, 61, 66) as a

35

function of the position of the at least one distance sensor (58, 59, 65) on the vehicle (10, 11, 12).

12. The lane device as claimed in one of the preceding
5 claims, characterized in that it is configured to perform a transverse control of the vehicle (10, 11, 12), in particular to generate a steering intervention in the vehicle (10, 11, 12).

10 13. A selector device for interaction with a parking aid device (28) and with a lane device (30) as claimed in one of the preceding claims, having selection means for selecting the distance data (60, 61, 66) of the at least
15 one distance sensor (58, 59, 65) as a function of the velocity of the vehicle (10, 11, 12) for the parking aid device (28) and/or for the lane device (30).

14. The selector device as claimed in claim 13,
20 characterized in that the selection means is configured to make a direction-dependent selection of the distance data (60, 61, 66) of at least two distance sensors (58, 59, 65) as a function of their position on the vehicle (10, 11, 12).

25 15. The selector device as claimed in claim 13 or 14, characterized in that it forms a component of the lane device (30) or of the parking aid device (28).

16. The lane device as claimed in one of claims 1 to 12
30 or selector device as claimed in one of claims 13 to 15, characterized in that it has program code which can be executed by a processor (25).

17. A storage means having a lane device and/or a
35 selector device as claimed in claim 16.

18. A vehicle, in particular a passenger car, characterized in that it has a lane device (30) as claimed in one of claims 1 to 12 or 16, or a selector device (29) as claimed in one of claims 13 to 16, and/or a storage
5 means as claimed in claim 17.

19. A method for detecting the lane of a vehicle (10, 11, 12), having the following steps:
evaluation of distance data (60, 61, 66) of at least one
10 distance sensor (58, 59, 65), it being possible to determine a lateral distance (d1-d4) from a reference body (62, 64) which runs essentially continuously to the side of the lane, at least in sections, from the distance data (60, 61, 66), and acquisition of lane data (36) as a
15 function of the distance data (60, 61, 66), characterized in that interference information, caused in particular by vehicles (17) present in the region of the lane or discontinuities (63) of the reference body (62, 64), are filtered out from the distance data (60, 61, 66).

20
20. A use of a distance sensor (58, 59, 65) which is a component of a parking aid device which is arranged in a vehicle (10), for providing distance data (60, 61, 66) which is fed to a lane device (30) which is also arranged
25 in the vehicle (10), the lane device (30) acquiring lane data (36) from this distance data (60, 61, 66) in order to determine a lane (15) along which the vehicle (10) is guided.